

AMENDMENT TO THE SPECIFICATION

Please amend the specification as follows:

[0008] However, in the inverter driver according to the conventional duty control method, the current waveform of the CCFL is steeply varied when the duty greatly reduces or increases, ~~and~~. Accordingly, the brightness of the CCFL becomes unstable, interference occurs in the adjacent circuit because of many harmonics thereof, and the lifetime of the CCFL shortens.

[0021] FIG. 1 shows an inverter driver according to a first preferred embodiment of the present invention;

[0022] FIG. 2 shows a ratio of a voltage V1 versus a voltage V2, and a relation between a voltage Vct and a frequency f in the inverter circuit 100;

[0023] FIG. 3 shows a signal waveform diagram according to a first preferred embodiment of the present invention; ~~and~~.

[0029] The inverter circuit 100 uses a serial/parallel resonance of a half bridge inverter; ~~and a~~. A resonance frequency of the inverter circuit 100 is a frequency whereby the total impedance of the inductor L1 and the capacitors C1, C2, and C3 becomes zero in the viewpoint of from the primary side to the secondary side of the inverter circuit 100.

[0030] Body diodes D1 and D2 are respectively coupled to the switches M1 and M2 of the inverter circuit 100, ~~and the~~. The body diodes enable zero voltage switching of the switches M1 and M2 as described later.

[0031] The control signal supply 200 comprises resistors R1 and R2 coupled in series between the input voltage Vcc and ground; ~~a~~. A subtractor 220 ~~for subtracting~~ subtracts a voltage Vnc at a node between the resistors R1 and R2 from a reference voltage Vr and outputting a subtraction voltage Va ($V_a = V_r - V_{nc}$); ~~a~~. A comparator 240 ~~for comparing~~ compares a reference

voltage V_{ref} and a feedback voltage V_{fb} at a resistor R_{sense} sensing the current flowing to the CCFL 10, ~~amplifying~~ the comparison result, and ~~outputting~~ a voltage V_{comp} ; ~~and a~~ A multiplier 260 for multiplying output signals of the subtractor 220 and the comparator 240 by a predetermined gain K to generate a voltage V_{mo} , and ~~supplying~~ the voltage V_{mo} to the duty controller 300.

[0034] The comparator 310 compares the output voltage V_{mo} of the control signal supply 200 with a voltage V_{ct} charged in the capacitor C_t of the frequency controller 400, and provides a comparison result to the R ~~end~~ terminal of the RS latch 320. The S ~~end~~ terminal of the RS latch 320 receives clock signals CLK from an oscillator 410 of the frequency controller 400. Signals output from the Q' ~~end~~ terminal of the RS latch 320 and the clock signals CLK of the oscillator 410 are input to two input ~~ends~~ terminals of the OR/NOR logic gate 330. Two output signals of the OR/NOR logic gate 330 are respectively provided to the high-side gate driver 350 for driving the switch M1 and the low-side gate driver 340 for driving the switch M2.

[0038] When the voltage V_t obtained by subtracting the voltage V_x from the voltage V_{comp} is greater than the voltage V_{rt} , the current I_{C1} flows to the resistor R_f , and the current I_{Ct} which is the difference ~~$I_{C2} - I_{C1}$~~ between the currents I_{C1} and I_{C2} (i.e., $I_{C2} - I_{C1}$) flows to a terminal of the oscillator 410 to which the resistor R_t is coupled.

[0039] The capacitor C_t is coupled to the oscillator 410, ~~and since~~ Since the current flowing to the capacitor C_t is matched with the current I_{Ct} , the current I_{Ct} charges or discharges the voltage at the capacitor C_t .

[0041] Given an amplitude V of the voltage V_{ct} , the period of the voltage V_{ct} charged in the capacitor C_t is the summation of the charge time $(C_t V)/I_{Ct}$ and the discharge time $(C_t V)/I_{Ct}$, ~~and accordingly~~ Accordingly, the frequency f of the voltage V_{ct} is given as Equation 2.

[0046] The operation frequency region of the inverter driver is between the minimum

frequency f_{low} and the maximum frequency f_{high} , ~~and as~~. As given in Equation 2, since the capacitor C_t is constant and the amplitude V of the voltage V_{ct} is also constant, the maximum frequency f_{high} is obtained when the current I_{Ct} is a maximum, and the minimum frequency f_{low} is obtained when the current I_{Ct} is a minimum.

[0047] Since $I_{Ct} = I_{C2} - I_{C1}$ and $I_{C2} = V_{rt}/R_t$, the I_{Ct} becomes the maximum and the frequency of the voltage V_{ct} accordingly becomes the maximum frequency f_{high} when $I_{C1} = 0$, ~~and~~ I_{Ct} becomes the minimum and the frequency of the voltage V_{dt} becomes the minimum frequency f_{low} when I_{C1} is the maximum.

[0069] The output voltage V_{comp} of the comparator 240 is input to ~~a non-an~~ an inverting end of the OP amp 430, and a resistor R_f is coupled between an inverting end of the OP amp 430 and the ground voltage. Since the voltages at the inverting and non-inverting ends of the OP amp 430 are the same, the voltage V_{comp} is applied to both ends of the resistor R_f , and the current I_{C1} flowing to the resistor R_f is V_{comp}/R_f .